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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 4 : A24B 15/28 — A1

(11) International Publication Number: WO 87/ 06104

(43) International Publication Date: 22 October 1987 (22.10.87)

(21) International Application Number: PCT/GB86/00749

(22) International Filing Date: 8 December 1986 (08.12.86)

(31) Priority Application Number: 8609603

(32) Priority Date: 19 April 1986 (19.04.86)

(33) Priority Country: GB

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(81) Designated States: AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB, GB (European patent), IT (European patent), LU (European patent), NL (European patent), SE (European patent), US.

Published
With international search report.

(54) Title: IMPROVEMENTS IN AND RELATING TO TOBACCO PRODUCTS

(57) Abstract

The smoking of tobacco products such as cigarettes results in the production of carcinogenic compounds formed from nitrogen and carbon. The addition of small quantities of zinc oxide or ferric oxide to the tobacco reduces or eliminates these carcinogenic compounds and also has the advantage of removing the stale 'after taste' associated with cigarettes.

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Title: Improvements in and relating to tobacco products

The present invention relates to tobacco products.

It has been well established for many years that the smoking of tobacco products is a primary cause of lung cancer. It is the nitrogen/carbon compounds which are produced by combustion of the tobacco in a tobacco product such as a cigarette and which are inhaled which are the cancer forming agents. Nitrogen and carbon combine to form, for example, pyridenes which are carcinogenous.

The present invention seeks to provide an improved form of tobacco product.

The term "tobacco" used herein includes not only tobacco but also other substances and tobacco-like substances which may be smoked.

Accordingly, the present invention provides a mixture comprising tobacco and at least one substance selected from iron and zinc compounds of the type that are reduced to iron or zinc respectively on exposure to high temperatures.

Under the conditions existing in the combustion area of a

tobacco product which is being smoked, such as a cigarette, incorporating for example ferric oxide in particulate form, the ferric oxide is reduced to iron. In this state immediately after reduction the iron is pure and highly reactive, dissociating water vapour into hydrogen and oxygen and also causing the preferential combination of nitrogen with hydrogen, rather than with oxygen and carbon, to form ammonia in trace quantities which vapourise. Thus the combination of nitrogen and carbon to form, for example, pyridenes is reduced if not eliminated. The use alternatively or additionally of zinc oxide produces a similar effect and increases the nicotine yield in the resulting smoke.

Apart from the reduction or elimination of the carcinogenous products of smoking, the addition of ferric oxide and/or zinc oxide also has the unexpected effect of removing the less desirable "taste" or "after taste" aspects of the tobacco products.

It will be appreciated that only minute quantities of ferric oxide and/or zince oxide are required and, since this compound is an inert, non-toxic, naturally occuring compound which is available in considerable quantities the addition of ferric oxide and/or zinc oxide does not in itself promote any harmful after effects.

The most effective way of mixing the zinc oxide in ferric oxide with tobacco is to form the zinc oxide or ferric oxide in solution in e.g. water and spray the solution onto the tobacco. As the tobacco dries, the zinc oxide or ferric oxide is left as a deposit on the tobacco.

Claims:

1. A mixture comprising tobacco and at least one substance selected from iron and zinc compounds of the type that are reduced to iron and zinc respectively on exposure to high temperatures.

2. A mixture as claimed in claim 1 wherein said iron compound is ferric oxide.

3. A mixture as claimed in claim 1 wherein said zinc compound is zinc oxide.

4. A tobacco product containing the mixture of claim 1, 2 or 3.

5. A tobacco product as claimed in claim 4 wherein said product is a cigarette.

6. A tobacco product as claimed in claim 4 wherein said product is a cigar.

INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 86/00749

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [6]

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC[4]: A 24 B 15/28

II. FIELDS SEARCHED

Minimum Documentation Searched [7]

Classification System	Classification Symbols
IPC[4]	A 24 B

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT [9]

Category [10]	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No. [13]
X,Y	FR, A, 2117355 (LIGGETT & MYERS INCORPORATED) 21 July 1972, see claims 1,5,6,7	1,3,4,5,6
X,Y	DE, C, 537734 (WENDT'S CIGARETTENFABRIKEN A.G.) 6 November 1931, see claim; examples I,II	1,2,4,5,6
X	DE, A, 2227832 (BRITISH AMERICAN TOBACCO CO. LTD) 11 January 1973, see claims 1-6; page 1, lines 1 and 2	1,3,4,5,6
X	DE, A, 2525276 (BRASE GmbH) 13 January 1977, see claims 9,13,14,35,44; page 1, lines 1,2	1-6

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
9th March 1987	03 APR 1987
International Searching Authority	**Signature of Authorized Officer**
EUROPEAN PATENT OFFICE	M. VAN MOL

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON

INTERNATIONAL APPLICATION NO. PCT/GB 86/00749 (SA 15500)

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 17/03/87

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A- 2117355	21/07/72	NL-A- 7116687	06/06/72
		DE-A- 2159921	31/08/72
		US-A- 3720214	13/03/73
		GB-A- 1336623	07/11/73
		CH-A- 547611	11/04/74
		CA-A- 987992	27/04/76
		BE-A- 776125	04/04/72
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		CH-A- 554652	15/10/74
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		BE-A- 784272	02/10/72
DE-A- 2525276	13/01/77	None	